Claims:

We claim:

1. A method for collecting a desired compound from a chromatographic column exit stream comprising:
   (a) directing the stream to a collection chamber
   (b) cooling the collection chamber to a sub-ambient condition
   (c) collecting the compound for a duration to concentrate in the collection chamber
   (d) heating the collection chamber
   (e) washing the collection chamber with a desired solvent
   (f) collecting the washing
2. The method as in claim 1 wherein the stream is directed to more than one collection chambers depending on detection of the stream component.
3. The method as in claim 1 wherein the washing can be accomplished in both forward and backward directions for efficient removal from the collection chamber.
4. The method as in claim 1 wherein the stream is directed to more than one collection chambers depending on time.
5. The method as in claim 1 wherein the chromatographic exit stream contains a compressed fluid.
6. The method as in claim 5 wherein the chromatographic exit stream contains one or more solvents.
7. The method as in claim 5 wherein the compressed fluid is selected from the group consisting of carbon dioxide, water, ammonia, nitrogen, nitrous oxide, methane, ethane, ethylene, propane, butane, n-pentane, benzene, methanol, ethanol, isopropanol, isobutanol, monofluoromethane, trifluoromethane, dimethyl sulfoxide, acetonitrile, hydrofluorocarbons, chlorotrifluoromethane, monofluoromethane, hexafluoroethane, 1,1-difluoroethylene, 1,2-difluoroethylene,toluene, pyridine,

cyclohexane, m-cresol, decalin, cyclohexanol, 0-xylene, tetralin, aniline, acetylene, chlorotrifluorosilane, xenon, sulfur hexafluoride, propane and combinations thereof.

8. The method as in claim 7 wherein the compressed fluid is carbon dioxide.
9. The method as in claim 1 wherein cooling of the collection chamber is accomplished through one or more of the following techniques: electric cooling, liquid nitrogen cooling, peltier cooling or other fluidic cooling.
10. The method as in claim 5 wherein cooling of the collection chamber is accomplished through the pressure reduction of the compressed fluid.
11. The method as in claim 1 wherein the heating of the collection chamber is accomplished through electrical or fluidic heating.
12. The method as in claim 1 wherein the cooling is accomplished rapidly.
13. The method as in claim 1 wherein the heating is accomplished rapidly.
14. The method as in claim 1 wherein the collection chamber contains absorbing material.
15. The method as in claim 1 wherein the collection chamber contains adsorbing material.
16. The method as in claim 14 or 15 wherein the material inside the collection chamber is in particulate form.
17. The method as in claim 14 or 15 wherein the material inside the collection chamber is a liquefied or frozen gas.
18. The method as in claim 1 wherein the collection chamber contains a removable cartridge.
19. The method as in claim 18 wherein the cartridge is packed with one or more materials described in claims 14 through 17.
20. The method as in claim 16 wherein the particles contain active or passive surface area for efficient retention.
21. The method as in claim 1 wherein heating of the collection chamber facilitates the removal of the compound from the collection chamber.

22. The method as in claim 1 wherein the temperature of the collection chamber is controlled.

23. The method as in claim 22 wherein the temperature control is achieved through a combination of the heating and cooling means.

24. The method as in claim 1 wherein the amount of washing solvent to be used is defined.

25. The method as in claim 5 wherein the compressed fluid is at near or supercritical condition.

26. The method as in claim 1 wherein the washings are collected in vials for further processing.

27. The method as in claims 1 through 26 wherein the activities are automated through the use of mechanical arrangements, electrical or pneumatic pulses, logic controllers, microprocessors and software programs.

28. The method as in claim 2 wherein the detection of the component is accomplished through the use of one or more of the detectors selected from the group consisting of Mass spectroscopy detector, UV/VIS detector, Evaporative Light Scattering Detector, Flame Ionization detector, Fourier Transform Infrared Spectroscopy Detector, Infrared Detector and combinations thereof.

29. The method as in claims 1 through 26 wherein the collection chamber can be cleaned with a solvent and dried for subsequent use.

30. The method as in claim 29 wherein the cleaning can be accomplished through forward or backward flowing of the solvent.

31. The method as in claim 1 wherein the collection in the collection chambers is enhanced by pressure reduction.

32. A device for collecting a desired compound from a chromatographic column exit stream comprising:

(a) a valve for directing the stream to a collection chamber

(b) coolers for cooling the collection chamber to sub-ambient conditions to retain the compound in the collection chamber

(c) heaters for heating the collection chamber

(d) mechanism for washing the collection chamber with a desired solvent

(e) mechanism for collecting the washing

33. The device as in claim 32 wherein the stream is directed to more than one collection chambers depending on detection of the stream component.

34. The device as in claim 32 wherein the washing can be accomplished in both forward and backward directions for efficient removal from the collection chamber.

35. The device as in claim 32 wherein the stream is directed to more than one collection chambers depending on time.

36. The device as in claim 32 wherein the chromatographic exit stream contains a compressed fluid.

37. The device as in claim 36 wherein the chromatographic exit stream contains one or more solvents.

38. The device as in claim 36 wherein the compressed fluid is selected from the group consisting of carbon dioxide, water, ammonia, nitrogen, nitrous oxide, methane, ethane, ethylene, propane, butane, n-pentane, benzene, methanol, ethanol, isopropanol, isobutanol, monofluoromethane, trifluoromethane, dimethyl sulfoxide, acetonitrile, hydrofluorocarbons, chlorotrifluoromethane, monofluoromethane, hexafluoroethane, 1,1-difluoroethylene, 1,2-difluoroethylene,toluene, pyridine, cyclohexane, m-cresol, decalin, cyclohexanol, 0-xylene, tetralin, aniline, acetylene, chlorotrifluorosilane, xenon, sulfur hexafluoride, propane and combinations thereof.

39. The device as in claim 38 wherein the compressed fluid is carbon dioxide.

40. The device as in claim 32 wherein the cooling of the collection chamber is accomplished through one or more of the following techniques: electric cooling, liquid nitrogen cooling, peltier cooling or other fluidic cooling.

41. The device as in claim 36 wherein cooling of the collection chamber is accomplished through the pressure reduction of the compressed fluid.

42. The device as in claim 32 wherein the heating of the collection chamber is accomplished through electrical or fluidic heating.

43. The device as in claim 32 wherein the cooling is accomplished rapidly.

44. The device as in claim 32 wherein the heating is accomplished rapidly.

45. The device as in claim 32 wherein the collection chamber contains absorbing material.

46. The device as in claim 32 wherein the collection chamber contains adsorbing material.

47. The device as in claim 45 or 46 wherein the material inside the collection chamber is in particulate form.

48. The device as in claim 45 or 46 wherein the material inside the collection chamber is a liquefied or frozen gas.

49. The device as in claim 32 wherein the collection chamber contains a removable cartridge.

50. The device as in claim 49 wherein the cartridge is packed with one or more material described in claims 45 through 48.

51. The device as in claim 47 wherein the particles contain active or passive surface area for efficient retention.

52. The device as in claim 32 wherein heating of the collection chamber facilitates the removal of the compound from the collection chamber.

53. The device as in claim 32 wherein the temperature of the collection chamber is controlled.

54. The device as in claim 53 wherein the temperature control is achieved through a combination of heating and cooling means.

55. The device as in claim 32 wherein the amount of washing solvent to be used is defined.

56. The device as in 35 wherein the compressed fluid is at or near supercritical condition.
57. The device as in claim 32 wherein the washings are collected in vials for further processing.
58. The device as in claim 32 wherein the mechanism for washing is automated and coordinated with the directing valve, collection chamber and washing solvent pump.
59. The device as in claim 58 wherein the washing solvent pump is capable of pumping more than one solvent drawn from different sources at a defined composition.
60. The device as in claim 59 wherein the defined composition is accomplished through the use of a series of valves.
61. The device as in claims 32 through 60 wherein the components can withstand pressures up to 1000 bar.
62. The device as in claims 32 through 60 wherein the fluidic connections can withstand pressures up to 1000 bar.
63. The device as in claims 32 through 60 wherein the fluidic connections are made of stainless steel or an alloy capable of withholding up to 1000 bar.
64. The device as in claims 32 through 63 wherein the activities are automated through the use of mechanical arrangements, electrical or pneumatic pulses, logic controllers, microprocessors and software programs.
65. The device as in claim 32 wherein the detection of the component is accomplished through the use of one or more of the detectors selected from the group consisting of Mass spectroscopy detector, UV/VIS detector, Evaporative Light Scattering Detector, Flame Ionization detector, Fourier Transform Infrared Spectroscopy Detector, Infrared Detector and combinations thereof.
66. The device as in claims 32 through 63 wherein the collection chamber can be cleaned with a solvent and dried for subsequent use.
67. The device as in claim 66 wherein the cleaning can be accomplished through forward or backward flowing of the solvent.

68. The device as in claim 32 wherein the collection in the collection chambers is enhanced by pressure reduction